

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: 10/801,493A
Source: 1FW16
Date Processed by STIC: 5/4/06

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IFW16

RAW SEQUENCE LISTING

DATE: 05/04/2006

PATENT APPLICATION: US/10/801,493A

TIME: 12:01:05

Input Set : A:\00281EUS.txt

Output Set: N:\CRF4\05042006\J801493A.raw

4 <110> APPLICANT: Yan, Riqiang
 5 Tomasselli, Alfredo G.
 6 Gurney, Mark E.
 7 Emmons, Thomas L.
 8 Bienkowski, Mike J.
 9 Heinrikson, Robert L.
 11 <120> TITLE OF INVENTION: SUBSTRATES AND ASSAYS FOR BETA-SECRETASE ACTIVITY
 13 <130> FILE REFERENCE: 29915/00281EUS
 15 <140> CURRENT APPLICATION NUMBER: 10/801,493A
 16 <141> CURRENT FILING DATE: 2004-03-16
 18 <150> PRIOR APPLICATION NUMBER: 09/908,943
 19 <151> PRIOR FILING DATE: 2001-07-19
 21 <150> PRIOR APPLICATION NUMBER: 60/219,795
 22 <151> PRIOR FILING DATE: 2000-07-19
 24 <160> NUMBER OF SEQ ID NOS: 199
 26 <170> SOFTWARE: PatentIn Ver. 2.0
 28 <210> SEQ ID NO: 1
 29 <211> LENGTH: 2070
 30 <212> TYPE: DNA
 31 <213> ORGANISM: Homo sapiens
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 36 ctgcggtctg cccgggagac cgacgaagag cccgaggagc ccggccggag gggcagcttt 180
 37 gtggagatgg tggacaacct gaggggcaag tcggggcagg gctactacgt ggagatgacc 240
 38 gtgggcagcc cccgcagac gctcaacatc ctggtggata caggcagcag taactttgca 300
 39 gtgggtgctg ccccccaccc cttcctgcat cgctactacc agaggcagct gtccagcaca 360
 40 taccgggacc tccggaaggg tgtgtatgtg ccctacaccc agggcaagtg ggaaggggag 420
 41 ctgggacccg acctggtaag catcccccat ggccccaacg tcaactgtgc tgccaacatt 480
 42 gctgccatca ctgaatcaga caagttcttc atcaacggct ccaactggga aggcattcctg 540
 43 gggctggcct atgctgagat tgccaggcct gacgactccc tggagccttt ctttgactct 600
 44 ctggtaaaagc agaccacagt tcccaacctc ttctccctgc acctttgtgg tgctggcttc 660
 45 cccctcaacc agtctgaagt gctggcctct gtcggaggga gcatgatcat tggaggatatc 720
 46 gaccactcgc tgtacacagg cagtctctgg tatacaccca tccggcggga gtggtattat 780
 47 gaggtcatca ttgtgcgggt ggagatcaat ggacaggatc tgaaaatgga ctgcaaggag 840
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 49 gtgtttgaag ctgcagtcaa atccatcaag gcagcctcct ccacggagaa gttccctgat 960
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 51 ttcccagtcg tctactcta cctaattgggt gaggttacca accagtcctt ccgcatacacc 1080
 52 atccttcgcg agcaatacct gcggccagtg gaagatgtgg ccacgtccca agacgactgt 1140
 53 tacaagtttg ccatctcaca gtcattccacg ggcaactgtta tgggagctgt tatcatggag 1200
 54 ggcttctacg ttgtctttga tcggggcccg aaacgaattg gctttgctgt cagcgcttgc 1260
 55 catgtgcacg atgagttcag gacggcagcg gtggaaggcc cttttgtcac cttggacatg 1320

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 6-7

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58 cgctgcctcc gctgcctgcg ccagcagcat gatgactttg ctgatgacat ctccttgcgtg 1500
59 aagtgaggag gcccatgggc agaagataga gattccccctg gaccacacct ccgtgggttca 1560
60 ctttgggtcac aagtaggaga cacagatggc acctgtggcc agagcacctc aggaccctcc 1620
61 ccacccacca aatgcctctg ccttgatgga gaaggaaaag gctggcaagg tgggttccag 1680
62 ggactgtacc tgtaggaaac agaaaagaga agaaaagaagc actctgctgg cgggaatact 1740
63 cttggtcacc tcaaatttaa gtctggaaat tctgctgctt gaaacttcag ccctgaacct 1800
64 ttgtccacca ttcttttaa ttctccaacc caaagtattc ttcttttctt agtttcagaa 1860
65 gtactggcat cacacgcagg ttaccttggc gtgtgtccct gtggtaccct ggcagagaag 1920
66 agaccaagct tgtttccctg ctggccaaag tcagtaggag aggatgcaca gtttgctatt 1980
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70 <210> SEQ ID NO: 2

71 <211> LENGTH: 501

72 <212> TYPE: PRT

73 <213> ORGANISM: Homo sapiens

75 <400> SEQUENCE: 2

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77 1 5 10 15
79 Leu Pro Ala His Gly Thr Gln His Gly Ile Arg Leu Pro Leu Arg Ser
80 20 25 30
82 Gly Leu Gly Gly Ala Pro Leu Gly Leu Arg Leu Pro Arg Glu Thr Asp
83 35 40 45
85 Glu Glu Pro Glu Glu Pro Gly Arg Arg Gly Ser Phe Val Glu Met Val
86 50 55 60
88 Asp Asn Leu Arg Gly Lys Ser Gly Gln Gly Tyr Tyr Val Glu Met Thr
89 65 70 75 80
91 Val Gly Ser Pro Pro Gln Thr Leu Asn Ile Leu Val Asp Thr Gly Ser
92 85 90 95
94 Ser Asn Phe Ala Val Gly Ala Ala Pro His Pro Phe Leu His Arg Tyr
95 100 105 110
97 Tyr Gln Arg Gln Leu Ser Ser Thr Tyr Arg Asp Leu Arg Lys Gly Val
98 115 120 125
100 Tyr Val Pro Tyr Thr Gln Gly Lys Trp Glu Gly Glu Leu Gly Thr Asp
101 130 135 140
103 Leu Val Ser Ile Pro His Gly Pro Asn Val Thr Val Arg Ala Asn Ile
104 145 150 155 160
106 Ala Ala Ile Thr Glu Ser Asp Lys Phe Phe Ile Asn Gly Ser Asn Trp
107 165 170 175
109 Glu Gly Ile Leu Gly Leu Ala Tyr Ala Glu Ile Ala Arg Pro Asp Asp
110 180 185 190
112 Ser Leu Glu Pro Phe Phe Asp Ser Leu Val Lys Gln Thr His Val Pro
113 195 200 205
115 Asn Leu Phe Ser Leu His Leu Cys Gly Ala Gly Phe Pro Leu Asn Gln
116 210 215 220
118 Ser Glu Val Leu Ala Ser Val Gly Gly Ser Met Ile Ile Gly Gly Ile
119 225 230 235 240
121 Asp His Ser Leu Tyr Thr Gly Ser Leu Trp Tyr Thr Pro Ile Arg Arg

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124 Glu Trp Tyr Tyr Glu Val Ile Ile Val Arg Val Glu Ile Asn Gly Gln
125          260          265          270
127 Asp Leu Lys Met Asp Cys Lys Glu Tyr Asn Tyr Asp Lys Ser Ile Val
128          275          280          285
130 Asp Ser Gly Thr Thr Asn Leu Arg Leu Pro Lys Lys Val Phe Glu Ala
131          290          295          300
133 Ala Val Lys Ser Ile Lys Ala Ala Ser Ser Thr Glu Lys Phe Pro Asp
134 305          310          315          320
136 Gly Phe Trp Leu Gly Glu Gln Leu Val Cys Trp Gln Ala Gly Thr Thr
137          325          330          335
139 Pro Trp Asn Ile Phe Pro Val Ile Ser Leu Tyr Leu Met Gly Glu Val
140          340          345          350
142 Thr Asn Gln Ser Phe Arg Ile Thr Ile Leu Pro Gln Gln Tyr Leu Arg
143          355          360          365
145 Pro Val Glu Asp Val Ala Thr Ser Gln Asp Asp Cys Tyr Lys Phe Ala
146          370          375          380
148 Ile Ser Gln Ser Ser Thr Gly Thr Val Met Gly Ala Val Ile Met Glu
149 385          390          395          400
151 Gly Phe Tyr Val Val Phe Asp Arg Ala Arg Lys Arg Ile Gly Phe Ala
152          405          410          415
154 Val Ser Ala Cys His Val His Asp Glu Phe Arg Thr Ala Ala Val Glu
155          420          425          430
157 Gly Pro Phe Val Thr Leu Asp Met Glu Asp Cys Gly Tyr Asn Ile Pro
158          435          440          445
160 Gln Thr Asp Glu Ser Thr Leu Met Thr Ile Ala Tyr Val Met Ala Ala
161          450          455          460
163 Ile Cys Ala Leu Phe Met Leu Pro Leu Cys Leu Met Val Cys Gln Trp
164 465          470          475          480
166 Arg Cys Leu Arg Cys Leu Arg Gln Gln His Asp Asp Phe Ala Asp Asp
167          485          490          495
169 Ile Ser Leu Leu Lys
170          500
173 <210> SEQ ID NO: 3
174 <211> LENGTH: 1977
175 <212> TYPE: DNA
176 <213> ORGANISM: Homo sapiens
178 <400> SEQUENCE: 3
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181 ctgcggctgc cccgggagac cgacgaagag cccgaggagc ccggccggag gggcagcttt 180
182 gtggagatgg tggacaacct gaggggcaag tcggggcagg gctactacgt ggagatgacc 240
183 gtgggcagcc ccccgagac gctcaacatc ctggtggata caggcagcag taactttgca 300
184 gtgggtgctg ccccccaccc cttcctgcat cgctactacc agaggcagct gtccagcaca 360
185 taccgggacc tccggaaggg tgtgtatgtg ccctacacc agggcaagtg ggaaggggag 420
186 ctgggcaccg acctggttaag catccccat ggccccacg tcaactgtgc tgccaacatt 480
187 gctgcatca ctgaatcaga caagttcttc atcaacggct ccaactggga aggcattcctg 540
188 gggctggcct atgctgagat tgccaggctt tgtggtgctg gcttccccct caaccagtct 600
189 gaagtgtggt cctctgtcgg agggagcatg atcattggag gtatcgacca ctcgtgtac 660

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192 agcattgtgg acagtggcac caccaacctt cgtttgcccc agaaagtgtt tgaagctgca 840
193 gtcaaatacca tcaaggcagc ctccctccacg gagaagtacc ctgatgggtt ctggctagga 900
194 gagcagctgg tgtgctggca agcaggcacc accccttgga acattttccc agtcatctca 960
195 ctctacctaa tgggtgaggt taccaaccag tccctccgca tcaccatcct tccgcagcaa 1020
196 tacctgcggc cagtgggaaga tctggccacg tccaagacg actgttataa gtttgccatc 1080
197 tcacagtcac ccacgggcac tgttatggga gctgttatca tggagggtt ctacgttgct 1140
198 tttgatcggg cccgaaaacg aattggcttt gctgtcagcg cttgccatgt gcacgatgag 1200
199 ttcaggacgg cagcgggtga aggccctttt gtcaccttg acatggaaga ctgtggctac 1260
200 aacattccac agacagatga gtcaaccctc atgaccatag cctatgtcat ggctgccatc 1320
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202 ctgcgccagc agcatgatga ctttctgtat gacatctccc tgcagaagtg aggaggcca 1440
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205 ctctgccttg atggagaagg aaaaggctgg caagggtgggt tccagggtact gtacctgtag 1620
206 gaaacagaaa agagaagaaa gaagcactct gctggcggga atactcttg tccactcaa 1680
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208 ttaaattctc caacccaaag tattctctt ttcttagttt cagaagtact ggcacacac 1800
209 gcaggttacc ttggcgtgtg tccctgtggt accctggcag agaagagacc aagcttggtt 1860
210 cctgtctggc caaagtcagt aggagaggat gcacagtttg ctatttgctt tagagacagg 1920
211 gactgtataa acaagcctaa cattggtgca aagattgcct cttgaaaaaa aaaaaaa 1977

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213 <210> SEQ ID NO: 4

214 <211> LENGTH: 476

215 <212> TYPE: PRT

216 <213> ORGANISM: Homo sapiens

218 <400> SEQUENCE: 4

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219 Met Ala Gln Ala Leu Pro Trp Leu Leu Leu Trp Met Gly Ala Gly Val
220 1 5 10 15
222 Leu Pro Ala His Gly Thr Gln His Gly Ile Arg Leu Pro Leu Arg Ser
223 20 25 30
225 Gly Leu Gly Gly Ala Pro Leu Gly Leu Arg Leu Pro Arg Glu Thr Asp
226 35 40 45
228 Glu Glu Pro Glu Glu Pro Gly Arg Arg Gly Ser Phe Val Glu Met Val
229 50 55 60
231 Asp Asn Leu Arg Gly Lys Ser Gly Gln Gly Tyr Tyr Val Glu Met Thr
232 65 70 75 80
234 Val Gly Ser Pro Pro Gln Thr Leu Asn Ile Leu Val Asp Thr Gly Ser
235 85 90 95
237 Ser Asn Phe Ala Val Gly Ala Ala Pro His Pro Phe Leu His Arg Tyr
238 100 105 110
240 Tyr Gln Arg Gln Leu Ser Ser Thr Tyr Arg Asp Leu Arg Lys Gly Val
241 115 120 125
243 Tyr Val Pro Tyr Thr Gln Gly Lys Trp Glu Gly Glu Leu Gly Thr Asp
244 130 135 140
246 Leu Val Ser Ile Pro His Gly Pro Asn Val Thr Val Arg Ala Asn Ile
247 145 150 155 160
249 Ala Ala Ile Thr Glu Ser Asp Lys Phe Phe Ile Asn Gly Ser Asn Trp
250 165 170 175

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Output Set: N:\CRF4\05042006\J801493A.raw

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252 Glu Gly Ile Leu Gly Leu Ala Tyr Ala Glu Ile Ala Arg Leu Cys Gly
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255 Ala Gly Phe Pro Leu Asn Gln Ser Glu Val Leu Ala Ser Val Gly Gly
256           195           200           205
258 Ser Met Ile Ile Gly Gly Ile Asp His Ser Leu Tyr Thr Gly Ser Leu
259           210           215           220
261 Trp Tyr Thr Pro Ile Arg Arg Glu Trp Tyr Tyr Glu Val Ile Ile Val
262 225           230           235           240
264 Arg Val Glu Ile Asn Gly Gln Asp Leu Lys Met Asp Cys Lys Glu Tyr
265           245           250           255
267 Asn Tyr Asp Lys Ser Ile Val Asp Ser Gly Thr Thr Asn Leu Arg Leu
268           260           265           270
270 Pro Lys Lys Val Phe Glu Ala Ala Val Lys Ser Ile Lys Ala Ala Ser
271           275           280           285
273 Ser Thr Glu Lys Phe Pro Asp Gly Phe Trp Leu Gly Glu Gln Leu Val
274           290           295           300
276 Cys Trp Gln Ala Gly Thr Thr Pro Trp Asn Ile Phe Pro Val Ile Ser
277 305           310           315           320
279 Leu Tyr Leu Met Gly Glu Val Thr Asn Gln Ser Phe Arg Ile Thr Ile
280           325           330           335
283 Leu Pro Gln Gln Tyr Leu Arg Pro Val Glu Asp Val Ala Thr Ser Gln
284           340           345           350
286 Asp Asp Cys Tyr Lys Phe Ala Ile Ser Gln Ser Ser Thr Gly Thr Val
287           355           360           365
289 Met Gly Ala Val Ile Met Glu Gly Phe Tyr Val Val Phe Asp Arg Ala
290           370           375           380
292 Arg Lys Arg Ile Gly Phe Ala Val Ser Ala Cys His Val His Asp Glu
293 385           390           395           400
295 Phe Arg Thr Ala Ala Val Glu Gly Pro Phe Val Thr Leu Asp Met Glu
296           405           410           415
298 Asp Cys Gly Tyr Asn Ile Pro Gln Thr Asp Glu Ser Thr Leu Met Thr
299           420           425           430
301 Ile Ala Tyr Val Met Ala Ala Ile Cys Ala Leu Phe Met Leu Pro Leu
302           435           440           445
304 Cys Leu Met Val Cys Gln Trp Arg Cys Leu Arg Cys Leu Arg Gln Gln
305           450           455           460
307 His Asp Asp Phe Ala Asp Asp Ile Ser Leu Leu Lys
308 465           470           475

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311 <210> SEQ ID NO: 5

312 <211> LENGTH: 14

313 <212> TYPE: PRT

314 <213> ORGANISM: Artificial Sequence

316 <220> FEATURE:

317 <223> OTHER INFORMATION: Description of Artificial Sequence: synthetic peptide sequence

320 <400> SEQUENCE: 5

321 Lys Val Glu Ala Asn Tyr Glu Val Glu Gly Glu Arg Lys Lys

322 1 5 10

325 <210> SEQ ID NO: 6

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/801,493A

DATE: 05/04/2006
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Input Set : A:\00281EUS.txt
Output Set: N:\CRF4\05042006\J801493A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:13; Xaa Pos. 7
Seq#:15; Xaa Pos. 4,7
Seq#:16; Xaa Pos. 1,4,5,6,7
Seq#:17; Xaa Pos. 1,2,4,5,6,7
Seq#:18; Xaa Pos. 1,2,4,5,6,7
Seq#:21; Xaa Pos. 5
Seq#:27; Xaa Pos. 7,19
Seq#:28; Xaa Pos. 6,7,11,20
Seq#:41; Xaa Pos. 9
Seq#:49; Xaa Pos. 1
Seq#:50; Xaa Pos. 2
Seq#:51; Xaa Pos. 3
Seq#:52; Xaa Pos. 4
Seq#:53; Xaa Pos. 5
Seq#:54; Xaa Pos. 6
Seq#:55; Xaa Pos. 7
Seq#:56; Xaa Pos. 8
Seq#:57; Xaa Pos. 1
Seq#:58; Xaa Pos. 2
Seq#:59; Xaa Pos. 3
Seq#:60; Xaa Pos. 4
Seq#:61; Xaa Pos. 5
Seq#:62; Xaa Pos. 6
Seq#:63; Xaa Pos. 7
Seq#:64; Xaa Pos. 8
Seq#:65; Xaa Pos. 1
Seq#:66; Xaa Pos. 2
Seq#:67; Xaa Pos. 3
Seq#:68; Xaa Pos. 4
Seq#:69; Xaa Pos. 5
Seq#:70; Xaa Pos. 6
Seq#:71; Xaa Pos. 7
Seq#:72; Xaa Pos. 8
Seq#:73; Xaa Pos. 1
Seq#:74; Xaa Pos. 2
Seq#:75; Xaa Pos. 3
Seq#:76; Xaa Pos. 4
Seq#:77; Xaa Pos. 7
Seq#:78; Xaa Pos. 8
Seq#:79; Xaa Pos. 8
Seq#:80; Xaa Pos. 9
Seq#:81; Xaa Pos. 1,7
Seq#:82; Xaa Pos. 2,7
Seq#:83; Xaa Pos. 3,7

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Seq#:84; Xaa Pos. 4,7
Seq#:85; Xaa Pos. 5,7
Seq#:86; Xaa Pos. 6,7
Seq#:87; Xaa Pos. 7
Seq#:88; Xaa Pos. 7,8
Seq#:89; Xaa Pos. 1
Seq#:90; Xaa Pos. 1,2
Seq#:91; Xaa Pos. 1,3
Seq#:92; Xaa Pos. 1,4
Seq#:93; Xaa Pos. 1,5
Seq#:94; Xaa Pos. 1,6
Seq#:95; Xaa Pos. 1,7
Seq#:96; Xaa Pos. 1,8
Seq#:97; Xaa Pos. 1,4,7
Seq#:98; Xaa Pos. 2,4,7
Seq#:99; Xaa Pos. 3,4,7
Seq#:100; Xaa Pos. 4,7
Seq#:101; Xaa Pos. 4,5,7
Seq#:102; Xaa Pos. 4,6,7
Seq#:103; Xaa Pos. 4,7
Seq#:104; Xaa Pos. 4,7,8
Seq#:105; Xaa Pos. 1,4,5,6,7
Seq#:106; Xaa Pos. 1,2,4,5,6,7
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Seq#:121; Xaa Pos. 9
Seq#:134; Xaa Pos. 5
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Seq#:154; Xaa Pos. 11
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Seq#:167; Xaa Pos. 16
Seq#:168; Xaa Pos. 21
Seq#:169; Xaa Pos. 26

VERIFICATION SUMMARY

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Input Set : A:\00281EUS.txt

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L:438 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:0
L:476 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15 after pos.:0
L:500 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16 after pos.:0
L:524 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17 after pos.:0
L:548 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:0
L:595 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21 after pos.:0
L:695 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:0
L:698 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:16
L:731 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:0
L:734 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:16
L:928 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41 after pos.:0
L:1045 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:49 after pos.:0
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L:1406 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:68 after pos.:0
L:1426 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:69 after pos.:0
L:1445 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:70 after pos.:0
L:1464 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:71 after pos.:0
L:1483 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:72 after pos.:0
L:1502 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:73 after pos.:0
L:1521 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:74 after pos.:0
L:1540 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:75 after pos.:0
L:1559 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:76 after pos.:0
L:1578 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:77 after pos.:0
L:1597 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:78 after pos.:0
L:1616 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:79 after pos.:0
L:1635 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:80 after pos.:0
L:1659 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:81 after pos.:0
L:1683 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:82 after pos.:0
L:1707 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:83 after pos.:0
L:1731 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:84 after pos.:0
L:1755 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:85 after pos.:0

VERIFICATION SUMMARY

DATE: 05/04/2006

PATENT APPLICATION: US/10/801,493A

TIME: 12:01:06

Input Set : A:\00281EUS.txt

Output Set: N:\CRF4\05042006\J801493A.raw

L:1779 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:86 after pos.:0
L:1798 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:87 after pos.:0
L:1822 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:88 after pos.:0
L:1841 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:89 after pos.:0
L:1865 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:90 after pos.:0
L:1889 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:91 after pos.:0
L:1913 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:92 after pos.:0
L:1937 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:93 after pos.:0
L:1961 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:94 after pos.:0
L:1985 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:95 after pos.:0
L:2009 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:96 after pos.:0
L:2038 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:97 after pos.:0
L:2067 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:98 after pos.:0
L:2096 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:99 after pos.:0
L:2120 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:100 after pos.:0
L:2149 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:101 after pos.:0
L:2178 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:102 after pos.:0
L:2202 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:103 after pos.:0
L:2231 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:104 after pos.:0
L:2256 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:105 after pos.:0
L:2285 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:106 after pos.:0
L:2314 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:107 after pos.:0
L:2343 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:108 after pos.:0
L:2377 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:109 after pos.:0
L:2411 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:110 after pos.:0
L:2440 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:111 after pos.:0
L:2469 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:112 after pos.:0
L:2612 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:121 after pos.:0
L:3213 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:134 after pos.:0
L:3232 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:135 after pos.:0
L:3251 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:136 after pos.:0
L:3514 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:154 after pos.:0
L:3533 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:155 after pos.:0
L:3557 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:156 after pos.:17
L:3579 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:157 after pos.:16
L:3598 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:158 after pos.:0
L:3620 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:159 after pos.:15
L:3643 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:160 after pos.:15
L:3665 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:161 after pos.:15
L:3684 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:162 after pos.:0
L:3703 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:163 after pos.:0
L:3728 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:164 after pos.:16
L:3749 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:165 after pos.:16
L:3769 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:166 after pos.:0
L:3791 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:167 after pos.:15
L:3814 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:168 after pos.:15
L:3836 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:169 after pos.:15